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EXAMINER

CHAWAN, SHEELA C

| ART UNIT | PAPER NUMBER |
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2625

DATE MAILED: 04/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/524,755

Applicant(s)

HEINRICH ET AL.

Examiner

Sheela C Chawan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 6-20 is/are rejected.
- 7) ☒ Claim(s) 2,5,21 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 15.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's arguments, see page 11-13, filed Nov 03, 2003, with respect to the rejection(s) of claim(s) 1- 22, under 103(a) rejection have been fully considered but they are not deemed to be persuasive.

In the remark, applicants have argued in substance that:

1. Savkar fails to mention one or more symmetric geometrical surface regions.
2. Savkar records images of the deposited layer and not the plasma jet and does not have data processing.

In the reply, the examiner states the following.

As to point 1, with respect to the art rejection, the examiner has carefully considered applicant's argument, but firmly believes the cited reference to reasonably and properly meet the claimed limitation. The examiner does not agree with the remarks that Savkar fails to mention one or more symmetric geometrical surface regions, see column 5, lines 53- 60 in fact, the computer compare the information from the video signal processor to a predetermined basic reference pattern or patterns. Therefore, Savkar reference inherently teaches geometrical patterns. The examiner has brought in secondary reference Hill et al. to reject this limitation, see Hill reference at column 6, lines 64- 67, column 7, lines 1-17, talks about the pattern formed on layer may include concentric or spiral optical servo tracks in the magnetic coating (note, layer may include concentric or spiral referring to geometrical pattern). However, applicant is reminded that the claim language is given its broadest reasonable interpretation.

As to point 2, the examiner does not agree with the remarks. Therefore, Savkar does teach recording images on plasma jet by the use of computer and data processing, see column 6, lines 24- 55, measuring plasma powder flow rate and carrier gas flow rates in a plasma spray process. The powder particles traveling at a velocity, which may have a broad and different sizes have different desired injection velocities for a given plasma distribution. In addition, the different sized particles will be accelerated at different rates by the carrier gas to the desired velocities. Applicant argues that Savkar reference does not teach data processing. Examiner disagree, see fig 1, element 44 and 38 shows computer control and video signal processor which process data for item 50 and 52 to out put signal for a video monitor item 46 (column 5, lines 16-30, 53- 55).

Applicant argues about obviousness rejection between the reference and for combining the reference etc. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references theme selves or in the knowledge generally available to one of ordinary skill in the art. See *In re fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re jones*, 958 F.2d 347, 21USPQ2d 1941(Fed. Cir. 1992).

DETAILED ACTION

Drawings

2. The drawings are objected to because of draftsperson's remarks (see attached PTO-948 paper number 11). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 U.S.C. § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103 and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4, 8-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Savkar et al. (US.5, 047,612, Listed in IDS paper # 7), in view of Hill et al. (US.5,633,123).

As per claims 1, 4, 9,11-13, 15 Savkar teaches a thermal spray coating method, comprising:

At least one of recording (column 9, lines 53-65), controlling (abstract, column 2, lines 15-20), and monitoring (column 2, lines 15-20) at least one characteristic of at least one of a plasma jet and a particle flux (see column 6, lines 24- 55, measuring plasma powder flow rate and carrier gas flow rates in a plasma spray process. The plasma powder particles traveling at a velocity, which may have a broad and different sizes have different desired injection velocities for a given plasma distribution. In addition, the different sized particles will be accelerated at different rates by the carrier gas to the desired velocities) which affects the quality of the coating (column 2, lines 32-41, column 3, lines 18-29) layer by creating images with a digital camera (column 2, lines 21- 41); and

assigning the images of the plasma jet or the particle flux (column 6, lines 24- 35) from one of at least one region of equal intensity (column 5, lines 16-52).

Savkar discloses an apparatus and method for controlling the deposition of a powder in a plasma spray process, and particularly to an apparatus and method in which the location and pattern of powder deposition is monitored and controlled, but

fails to specifically mention about one or more symmetric geometrical surface regions by computer processing or encoding. However, Hill discloses a method of forming a shaped image in a workpiece. More specifically, the present invention relates to a method of forming a shape image in a workpiece using a high energy source and a layer disposed proximate the workpiece such that the layer prevents debris from the workpiece thereon, a laser is directed toward the workpiece and a mask is provided between the laser and debris -blocking layer. The laser may be an ultraviolet laser and the debris-blocking layer should be transparent to the light emitted by the laser. The patterns formed on this layer may include concentric or spiral optical servo tracks in the magnetic coating (column 6, lines 64-67, column 7, lines 1-17, as shown by Hill the use of one or more symmetric geometrical surface regions by computer processing, because the patterns formed on this layer is capable of forming an optimum image in the coating or the boundary portion (column 6, lines 64- 67, column 7, lines 1-8).

Therefore, it would have been obvious to one with ordinary skill in the art at the time of invention to incorporate the teaching as taught by Hill's into the system of Savkar, because, one with ordinary skill in the art would realize that it is capable of forming an optimum image in the coating or the boundary portion as suggested by Savkar at (column 4, lines 10- 23).

As per claims 3 and 7, Hill teaches a method according to Claim 1, wherein said assigning comprises recording the one or mere symmetric geometrical surface (column 6, lines 64- 67, column 7, lines 1 - 17) regions as a data record based on independent

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typical characteristics of the respective geometric shape (column 6, lines 64- 67, column 7, lines 1 - 17).

As per claim 8, Hill teaches a method according to Claim 1, wherein the computer processing and/or encoding is carried out by at least one of a contour detection algorithm, a gradient steps representation, or a gradient accentuating representation reduced to bit planes (column 7, lines 34-47).

As per claims 10 and 14, Savkar teaches a method according to Claim 3, further comprising controlling or optimizing one or more parameters of the thermal spray coating process with the symmetric geometrical surface region or the data record (column 2, lines 49- 68).

As per claim 16, the same limitations as set forth in claim 1, are contained as an independent claim (refer to claim 1 for common features) except for steps of claim 16, as taught by Savkar which recites a computer readable program code means for causing said computer to store in an array values representing the boundaries of the various intensity levels of said digital image and means for causing said computer to compare said stored boundary values of said images with stored values for one or more symmetric geometrical surface regions and to chose the closest matches for each of said various intensity levels resulting from said comparison (column 5, lines 10- 68, column 3, lines 4-17, column 8, lines 36-59);

computer readable program code means for causing said computer to determine a plurality of characteristics of said chosen symmetric geometrical surface regions and

compile a listing of said characteristics as a data base in order to monitor quality of the event (column 7, lines 7- 63).

As per claim 17, Hill teaches the computer program product according to claim 16, wherein the event is a thermal spray coating (column 10, lines 8-27).

As per claim 19 is representative of claim 16.

4. Claims 6, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Savkar et al. (US.5, 047,612, Listed in IDS paper # 7), in view of Hill et al., (US.5,633,123), as applied to the above claims 1-4, 7- 17 and 19 and further in view of Bok et al. (US.5,171,613).

Regarding claims 6,18 and 20, Savkar discloses an apparatus and method for controlling the deposition of a powder in a plasma spray process, and particularly to an apparatus and method in which the location and pattern of powder deposition is monitored and controlled, but fails to specifically mention about wherein the symmetric geometrical surface regions are ellipses. However, Bok discloses a method and apparatus of the present invention, have now been provided which maintain the spray temperature of the coating mixture, whether sprayed in a single-pass or multi-pass mode, such that proper atomization is provided which is manifested by obtaining a feathered spray pattern .The system comprises of:

wherein the symmetric geometrical surface regions are ellipses (column 24, lines 2-15) , as show by Bok the use of wherein the symmetric geometrical surface regions are ellipses, because to reduce gas flow rate (column 24, lines 12- 14).

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Therefore, it would have been obvious to one with ordinary skill in the art at the time of invention to incorporate the teaching as taught by Bok's into the system of Savkar, because, one with ordinary skill in the art would realize that it would reduce gas flow rate, as suggested by Bok at (column 24, lines 12- 14).

Allowable Subject Matter

5. Claims 2, 5, 21 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP, 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela C Chawan whose telephone number is 703-305- 4876. The examiner can normally be reached on Monday - Thursday 6 - 7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 703-308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Sheela Chawan
Patent Examiner
Group Art Unit 2625
April 8, 2004


Jayanti K. Patel
Primary Examiner